

The object of the present invention is to provide α 1,4-galactosyltransferase to transfer a galactose residue to C4 position of galactose residue of lactosylceramide or galactosylceramide, and DNA coding for the enzyme.

(a) a polypeptide consisting of an amino acid sequence represented by the amino acid Nos. 46-353 in SEQ ID NO: 2; or

(b) a polypeptide which comprises an amino acid sequence including substitution, deletion, insertion or transposition of one or few amino acids in the amino acid sequence of (a) and which has an enzymatic activity to transfer a galactose residue from a galactose donor to C4 position of galactose residue of lactosylceramide or galactosylceramide which serves as an acceptor.